

SUN CONTROLS



CONSTRUCTION SPECIALTIES, INC.



LEADERSHIP



in product development

From the development of the first extruded aluminum cantilever sunshade in 1953 to the introduction of a unique line of solar grilles in 1960, Construction Specialties has originated over twenty new products to assist architects and engineers with their solar control problems. C/S research and engineering is a continuous process directed toward optimum product efficiency and economy as well as sound architectural design.



in aluminum finishing techniques

Construction Specialties pioneered in the application of long life butyrate lacquers and Hi Bake epoxy color coatings to architectural aluminum. C/S has completely integrated in-plant finishing facilities to assure the architect of the finish specified. Facilities include a clear and color anodizing plant under Alcoa license, a caustic etch and lacquer line, and production Hi Bake epoxy color coating equipment.



in technical assistance

Construction Specialties continues to lead the field in supplying architects and engineers with expert technical help, design service and product samples. This service is available through qualified representatives located in 90 major cities throughout the United States and Canada.



in manufacturing quality

Construction Specialties has built its business by consistently delivering a better product. A fully staffed engineering and production organization using the latest technological equipment is the cornerstone of C-S quality. Factory trained field erection supervisors or complete field erection crews are available to fully insure C-S quality in the completed installation.

PLANTS: CRANFORD, N. J. • ESCONDIDO, CALIFORNIA • TORONTO, CANADA

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CO



**Arrowhead High School,
Hartland, Wisconsin
Architect: Durrant and
Bergquist**

C-S Cantilever sunshade used in window wall application. Sunshade furnished in C-S standard etch and lacquer finish.

standard fixed

standard cantilever
horizontal suspended
rainproof canopies
sun curtains

4
6
6
8



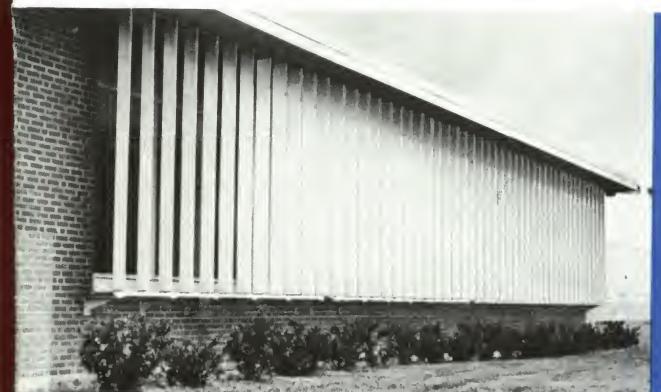
**Beecher Road School,
Woodbridge, Connecticut
Architect: Davis, Cochran
and Miller.**

C/S Cantilever Airfoil Sunshade using 7½" x 1½" blades span 14 feet between outriggers. Eleven runs 28 feet long were finished in a six minute caustic etch protected by two coats of CS 64 butyrate lacquer.

airfoil fixed

cantilever airfoils
horizontal airfoils
vertical airfoils
rectangular panels

10
12
12
14



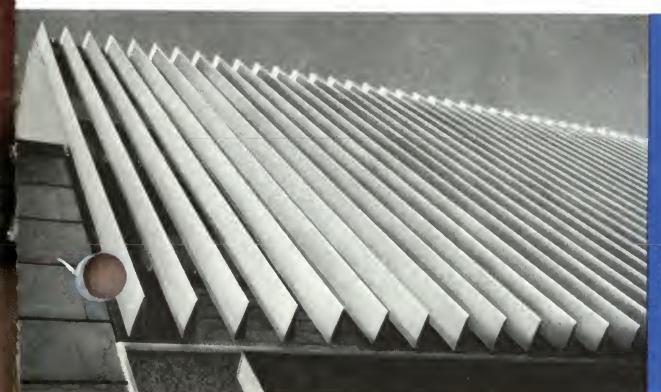
**Gates Rubber Company,
Madison, Tenn.
Architect: Rust Engineering
Company**

Twenty-eight runs of electrically operated airfoils protect office areas.

operating

extruded z blade
operating airfoils
monumental airfoils

15
15
16



**Emery Parking Garage,
Cincinnati, Ohio
Architect: National Garages**

Ninety-seven, 14 inch C-S Demi-fins 40 feet high were used to enclose and beautify this functional parking garage. The Demi-fins were furnished in a 204 R1 anodize finish protected by two coats of CS 64 butyrate lacquer.

demi-fins finishes

demi-fins
finishes

18
19

4

standard cantilever type • anchorage

Construction Specialties Cantilever Sun Shades offer solar shading in a sweeping horizontal line without obstruction to view.

appearance All fascia and blades are mechanically secured in true alignment. The wall anchorage is neat; there are no exposed bolts or other fastenings. The fascia may be selected from seven C-S styles to harmonize with other elements in the building's design. The important appearance factor of line-up is facilitated by the exclusive C-S spline. This acts both to line up and provide for expansion and contraction between individual shade sections. Positive provision for line-up and expansion is also made in the structural fascia members.

solar shading efficiency Sun and sky glare are controlled by the sunshade overhang, which may extend 72 inches from the exterior building wall. Each installation should be individually job-engineered with the following factors taken into consideration: orientation of the building to the sun, geographical location of the building, height of windows to be shaded, hours of solar shading desired, and the structural condition at the head of all windows. Our experienced engineering staff is prepared to study your requirements and submit recommendations, details, and cost data. All inquiries should clearly report on all job-engineering factors noted above.

structural soundness The use of our extruded 6061 T6 aluminum alloy, reinforced outrigger, secured to the building in our high strength, heat treated castings, provides an unusually strong structural member capable of supporting the cantilever load with a high safety factor. All outriggers and castings are certified for a minimum live load of 30 pounds per square foot of sun shade.

economy As a result of our specialization and experience in solar shading, we have been able to lower solar shading costs substantially, at the same time offering an engineered, quality product.

low initial cost C-S Sun Shades are manufactured from our own standard, mass-produced extrusions, which have been designed for simplified, economical shop fabrication. Additional economies are realized through our use of specialized production equipment.

low erection cost Our Sun shades are delivered to the job in assembled sections, ready for erection. Our castings permit erection directly to structural members—yet the walls go up without the interference of outriggers. Our escutcheon castings provide ample adjustment to meet job conditions. Fascias and shade sections have integral line-up features. The use of steel outriggers and the problems of co-ordinating line-up and positioning are eliminated. A thoroughly professional job is accomplished with ease and a minimum of on-the-job labor.

anchorage Of great importance to the architect is our success in having solved the problem of safe anchorage for a wide variety of building types and wall conditions. Detailed on the next page are a number of our high strength, field-tested anchorages which are available from stock. Note the neat, unobtrusive lines of our castings. Our wedge-lock anchorage enables us to completely recess our castings in the wall, doing away with objectionable projections and visible fastenings. Our permanent mold castings have a neat, finished appearance and employ alloys that heat treat to a minimum strength of 36,000 psi.

finishes C-S Extruded Aluminum Sun Shades are supplied in etch and lacquer or a wide variety of alumilite finishes. A considerable degree of eye-appeal may be achieved economically by the use of specialized finishes on the fascia alone. The specification of fascias in satin finish alumilite will add only slightly to the average job cost. Fascias may also be supplied in porcelain enamel colors or in a wide range of permanent vinyl base colors. (For detailed information on available C-S Finishes, see page 19.)

suggested specifications

Furnish and install as indicated on drawings, C-S Extruded Aluminum Cantilever Sun Shades as manufactured by Construction Specialties, Inc., Cranford, New Jersey, (for West Coast use Escondido, California). Complete shop drawings to be submitted to the architect for review and approval. Sun Shades to be fabricated in entirety from extruded aluminum sections—outriggers 6061 T6 alloy, minimum .109 gauge, blades and fascia of 6063 T5 alloy, minimum .081 gauge. All outriggers to be secured to the building structure by C-S Anchorage Part No. SA-5 (or C-S part No. as selected) and to be certified for a minimum live-load of 30 pounds per square foot of sunshade. All anchorages to be high strength aluminum alloy heat treated to develop a minimum strength of 36,000 psi. All anchor bolts and anchorage inserts shall be stainless steel. Individual sun shade sections to be lined up by use of a mating tongue-and-groove at the top and bottom between all sections. Expansion and contraction to be provided for at the spline joint and in the fascia.

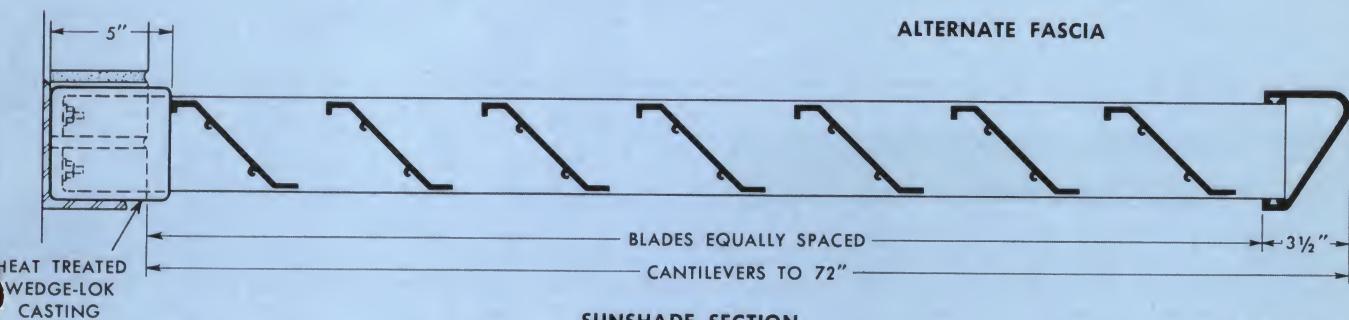
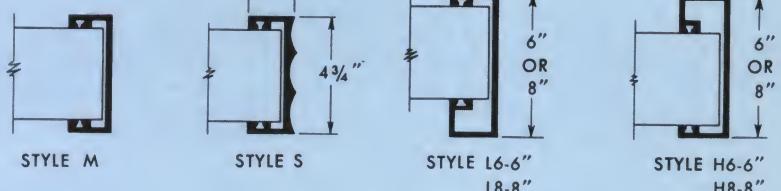
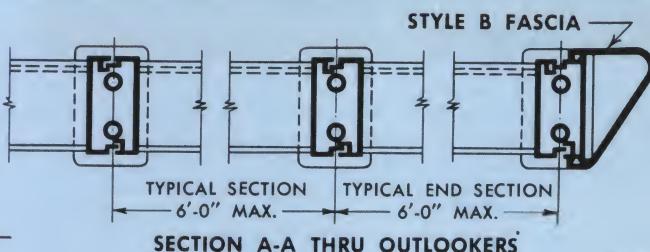
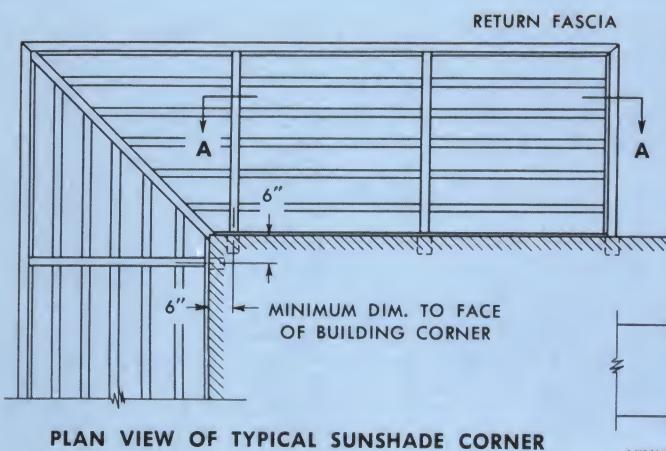
The fascia of the Sun Shades shall be C-S Extruded Aluminum Fascia Style H-8 (or other C-S style desired). There shall be no bolts or holes through the fascia. All fascia expansion joints to have concealed expansion joint covers and provision for exact fascia line-up. Fascia members to be selected for trueness and unmarred face finish. All fascia to be polished to a satin finish and given a one-half hour, .0004 thickness anodize, with two protective coats of clear CS 64 butyrate lacquer. All other extruded aluminum sections to be given a six minute caustic etch (or other finish desired) and given two coats of CS 64 clear butyrate lacquer. All erection to be performed in a thoroughly workmanlike manner in accordance with the manufacturer's approved procedures. It is important that the architect clearly specify the setting of all C-S anchorage devices under appropriate sub-contract.



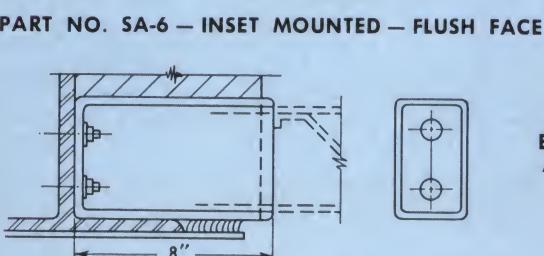
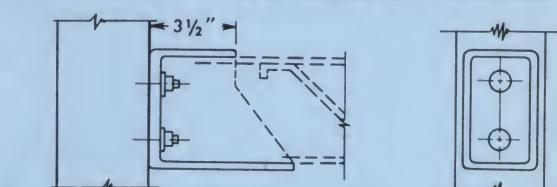
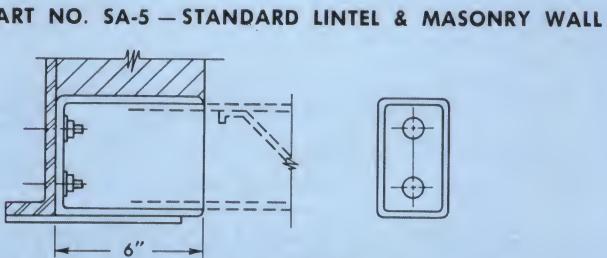
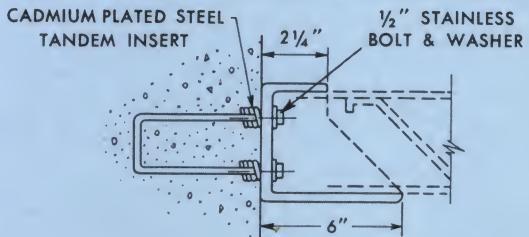
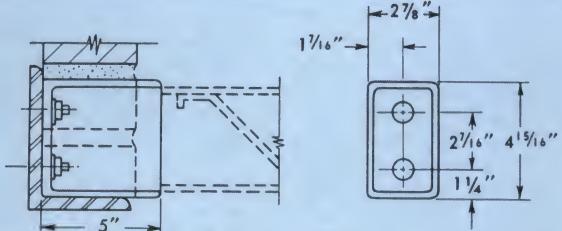
Orange County Courthouse, Orlando, Florida
Architect: James Gamble Rogers, Lovelock, Fritz

Five runs of C-S Cantilever Sunshade protect south elevation.

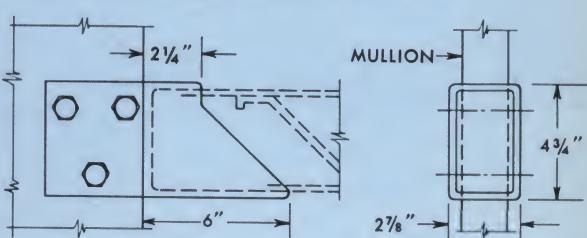
standard cantilever type • anchorage



SCALE: 1 1/2" = 1'-0"



EXCLUSIVE WEDGE-LOK ANCHORAGE SECURES ALL OUTRIGGERS



SCALE: 1 1/2" = 1'-0"

horizontal suspended sunshades

The C/S suspended Sunshade has been redesigned to meet demands for a structural suspension bracket with architectural flair. The C/S extruded tube bracket is neatly formed from 1 $\frac{1}{4}$ " diameter tube with a .125 wall thickness. It is a graceful unit which can be reversed to support the sunshade or canopy from below if desired. Individual designs in brackets to support C/S sunshades or canopies from above or below will be developed on architect's request. C/S Suspended Sunshades are fabricated from the same aluminum extrusion as our Cantilever Sunshades, and are ideally suited for horizontal sunshade installation where structural support is not available at the root of the sunshade or where spans of more than 6 feet are desired. Spans over 8 feet require our 6" or 8" extruded fascia. C/S Suspended Sunshades may be supplied in a variety of alumilite or etch and lacquer finishes. A considerable degree of eye appeal may be achieved economically by the use of specialized finishes on the fascia alone. Where color is desired, matte or gloss finishes in epoxy coatings are recommended for permanency and economy.

suggested specifications

Furnish and install, as indicated on drawings, C/S extruded aluminum Horizontal Suspended Sunshades as manufactured by Construction Specialties, Inc., Cranford, New Jersey (for West Coast, use Escondido, California). The Sunshades are to be fabricated entirely from extruded aluminum sections, minimum .081 gauge, 6063-T5 alloy. Suspension brackets shall be extruded aluminum tube 1 $\frac{1}{4}$ " diameter minimum .125 wall thickness. All bends shall be neatly formed to a true radius. Suspension brackets and anchorages shall be engineered and certified for a minimum live-load of 30 psi of sunshade. Individual sunshade sections to be lined up by use of a spline joint along the top and bottom between all members. Expansion and contraction to be provided for at the spline joint and in the fascia. The fascia of the sunshades shall be C/S extruded aluminum fascia style H 8 (or other C/S style). All C/S fascia to be polished to a satin finish and given a one-half hour alumilite with two protective coats of C/S 64 butyrate lacquer. All other extruded aluminum sections to be given an etch finish and one coat of C/S 64 butyrate lacquer.

rainproof canopies

ventilated type

The C/S Ventilated Canopy, fabricated throughout from extruded aluminum sections, provides a rugged good-looking canopy to both shade windows and protect from rain and snow. The ventilated blade design provides air circulation to prevent entrapment of hot air under the canopy. The C/S canopy is a finished product—no exposed fastenings mar its appearance; no fastenings impede water flow or catch debris. This canopy can also be incorporated in runs of our standard cantilever or suspended sunshades over entrance areas. The $\frac{1}{8}$ " structural outriggers and the heavy extruded W blades will withstand heavy ice and snow loads. Suspension brackets similar to those shown for our suspended sunshade may be used where desired. Blades, gutters, flashings, and anchorage are designed to handle water run-off without problems of overflow or leakage into building wall. The extruded aluminum blades feature a #10 fluted pattern on both sides. The ventilated blade may be run either parallel or perpendicular to the building wall depending on projection and the design requirement.

suggested specifications

Furnish and install, as indicated on drawings, C/S extruded aluminum Ventilated Canopies as manufactured by Construction Specialties, Inc., Cranford, New Jersey (for West Coast use Escondido, California). Canopies to be fabricated in entirety from extruded aluminum 6063-T5 alloy, minimum .081 gauge with outriggers to be heavy gauge structural members. All cast anchorage to be high strength aluminum alloy, heat treated to develop a minimum strength of 36,000 psi. All canopies certified for a minimum live-load of 30 pounds per square foot. All fastenings to be type 302 stainless steel. Drainage gutters, pitcher spouts, and downspouts shall be furnished and installed as detailed. Flashings shall be supplied and installed by others. Fascia shall be C/S extruded aluminum fascia style H 8 (or other style as desired). All blades to have a #10 fluted pattern on both sides. Fascia to have a 204 R1 anodize finish protected by two coats of C/S 64 butyrate lacquer. All other sections to have a six minute caustic etch and one coat of C/S 64 butyrate lacquer.

closed type

The Closed Canopy provides a unit with maximum rain protection combined with the optimum in an economical canopy. This C/S canopy features a continuous deck formed to give excellent structural characteristics as well as positive water run-off. Large projections may be designed by the use of pipe column supports, structural steel outriggers, or all aluminum suspension hangers. Color may be effectively added to these canopies by coating the entire underside of the deck area with a C/S epoxy color finish. Color and line may also be incorporated most economically by finishing the fascia alone. Electric lighting fixtures or Quartz Radiant Heating Units may be economically included in C/S Closed Canopies when desired.

suggested specifications

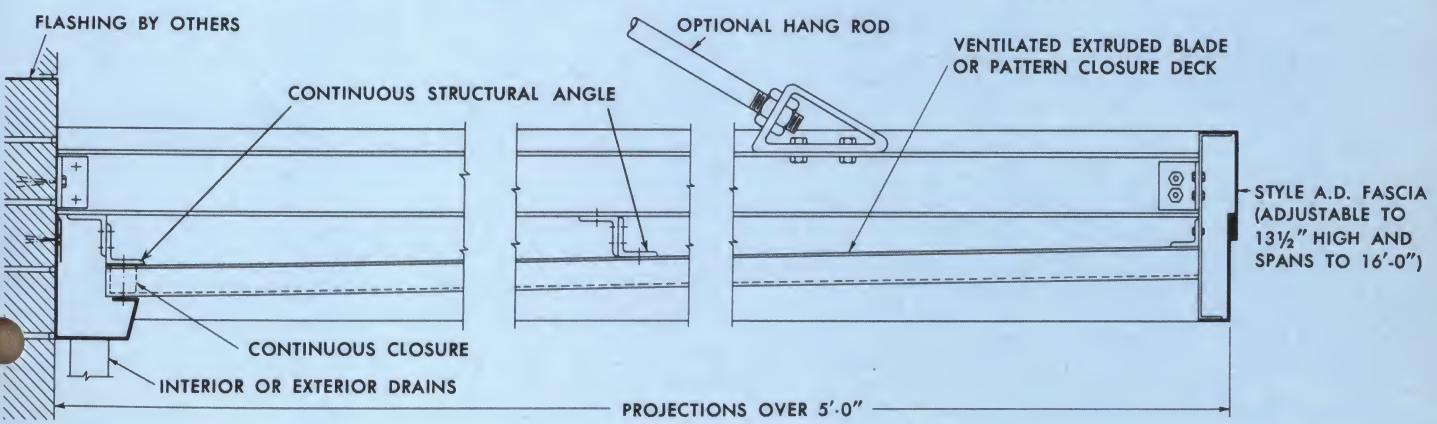
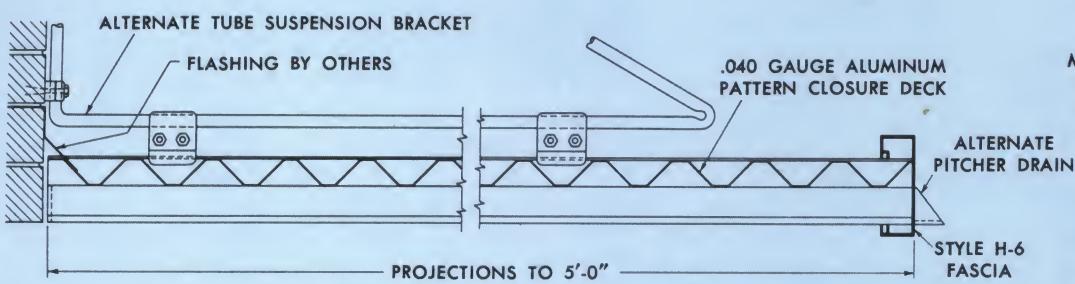
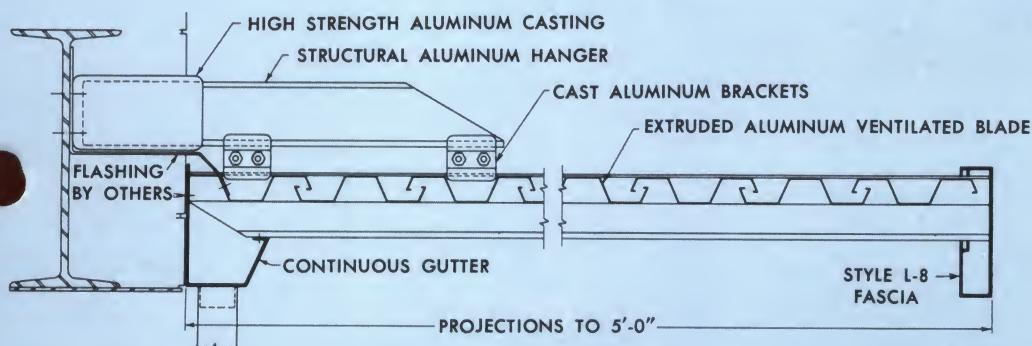
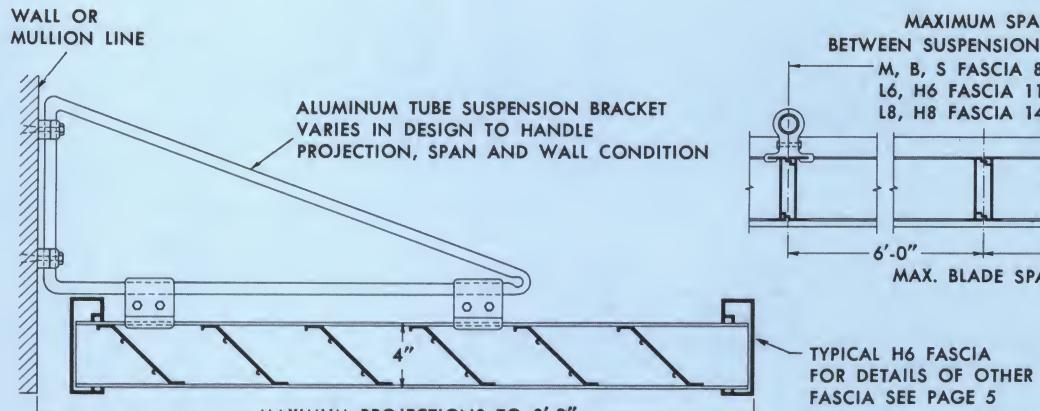
Furnish and install, as indicated on drawings, C/S Closed Rainproof Canopies as manufactured by Construction Specialties, Inc., Cranford, New Jersey (for West Coast use Escondido, California). Canopy deck to be fabricated from .040 gauge E5 stucco pattern aluminum, with outriggers and fascia to be heavy gauge extruded aluminum structural members. All canopies certified for a minimum live-load of 30 pounds per square foot. Drainage gutters, pitcher spouts, and downspouts shall be furnished and installed as detailed. Flashings shall be supplied and installed by others.

Waterproof light fixtures as detailed shall be supplied and installed as an integral part of the canopy. Aluminum conduit and wiring shall be supplied under the electrical contract.

Fascia shall be C/S extruded aluminum fascia style H 8 (or other style as desired). Fascia and outriggers to have a 204 R1 anodize finish protected by two coats of C/S 64 butyrate lacquer. Canopy deck to be supplied in E5 pattern in mill finish.

Write for C/S Service File CA 9 for detailed information on the complete line of C/S canopies and accessories.

**horizontal suspended sunshades
rainproof canopies**



sun curtains

horizontal line

The C-S Horizontal Sun Curtain is a highly efficient sun shade on any elevation. Any degree of shading may be achieved regardless of orientation or season by adjusting blade spacing and total drop requirement. This sun shade is the most economical quality sun shade in terms of square foot erected cost currently available.

mounting data The horizontal line sun curtain may be hung from an overhang or it may be mounted directly at the face of the window. A variety of high strength aluminum castings are available for neat rugged anchorage on drops to 48 inches. Support braces should be detailed when larger drops are required. Where this sun curtain is mounted at the window, it is hinged at the head to swing out for ease in window washing.

blade spacing With the Horizontal Line Sun Curtain the blade spacing should be carefully analyzed for each elevation. An 8 inch spacing will effectively close out the sun rays at all times. On southerly elevations a wider spacing can be used and still give maximum protection. The following table will assist in selecting the proper blade spacing.

blade spacing, inches	keeps out sun rays above
8	0° elevation
8½	5° elevation
9	10° elevation
10	17° elevation
11	25° elevation

alternate blade Where a smaller module is desired a 7 inch blade projecting 4 inches is available from stock with mating blade braces to replace the standard 10 inch blade projecting 6 inches detailed here.

vertical line

C/S Vertical Line Sun Curtains are particularly effective in providing sun protection on east or west elevations. They are attractive from inside the building and add bold neat lines to the exterior. An important feature of the Vertical Line Sun Curtain is its ease of installation on either new or existing buildings.

interlocked blade brace

The C/S Snap-in interlocked Blade Brace is a C/S exclusive feature which makes possible our quality Horizontal or Vertical Line Sun Curtains. The blade brace sturdily supports the blades from the structural supports at the rear of the sun curtain. The interlocking action eliminates chatter, deflection, and up-lift under the heaviest wind loads. The snap-in design makes for fast, easy, accurate field erection. Louvers may be made and installed up to 26 feet without joints. Blade braces assure accurate blade line-up where sun curtains over 26 feet are desired.

economy

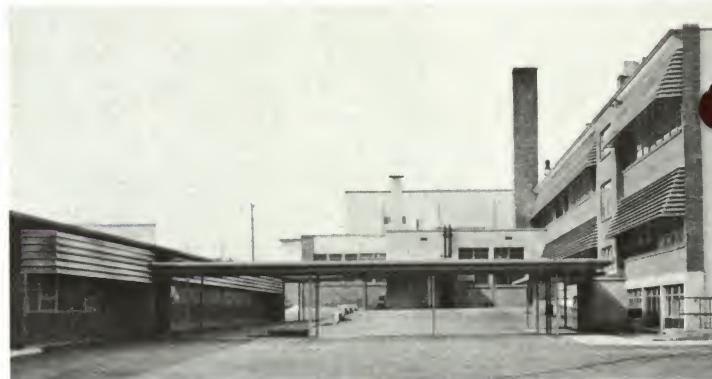
An important feature of the Vertical Line Sun Curtains is their economy combined with their modern appearance. Colors may be economically added by the use of our epoxy coatings described on page 19. Blade spacing should be adjusted as wide as possible consistent with the degree of sun protection desired. A variety of structural aluminum supports are available to support the blades and blade braces, and the supports should be designed for the spans and wind loads involved. Write for Service File WC-10 for standard details covering a variety of installations.

suggested specifications

Furnish and install, as indicated, on the drawings, C-S Horizontal Line or Vertical Line Sun Curtains as manufactured by Construction Specialties, Inc., Cranford, New Jersey (for West Coast, use Escondido, California). Complete shop drawings and full size samples to be submitted to architect for approval. All blades shall be extruded aluminum sections minimum .081 gauge with reinforcing bosses. Blade braces and structural support members shall be extruded aluminum minimum .125 gauge properly engineered to meet 30 pounds per square foot wind loadings. Blades and blade braces shall be of the size and spacing as shown on the drawings. Blade braces shall have provision for positive blade interlock and accurate blade line-up at all expansion joints. All fastenings shall be type 302 stainless steel. All anchorage castings to be high strength aluminum alloy, heat treated to develop a minimum strength of 36,000 psi. All aluminum to be given a 204 R1 anodize finish protected by one coat of C-S 64 butyrate lacquer. All blades to be erected to line-up straight and true. All erection to be made in accordance with manufacturer's approved procedures.

typical applications

horizontal



North Pines Junior High School, Spokane, Washington
Architect: Donald Warren

Both perpendicular and awning type horizontal line sun curtains effectively shade classrooms in this school.

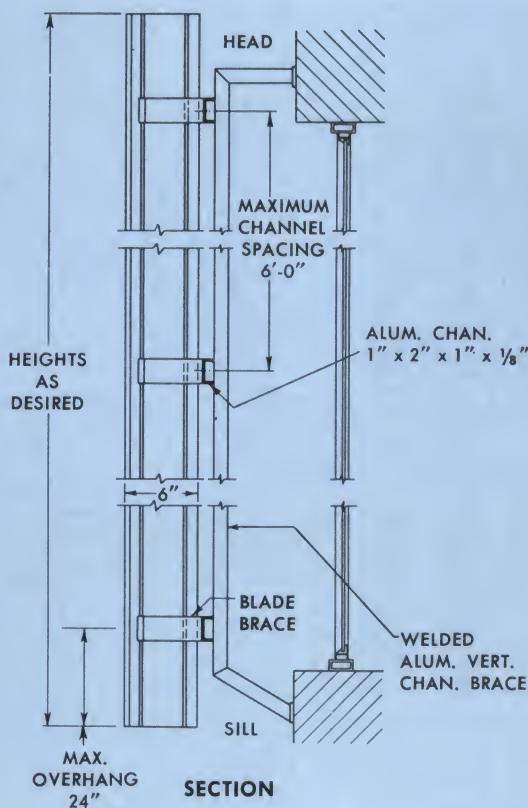
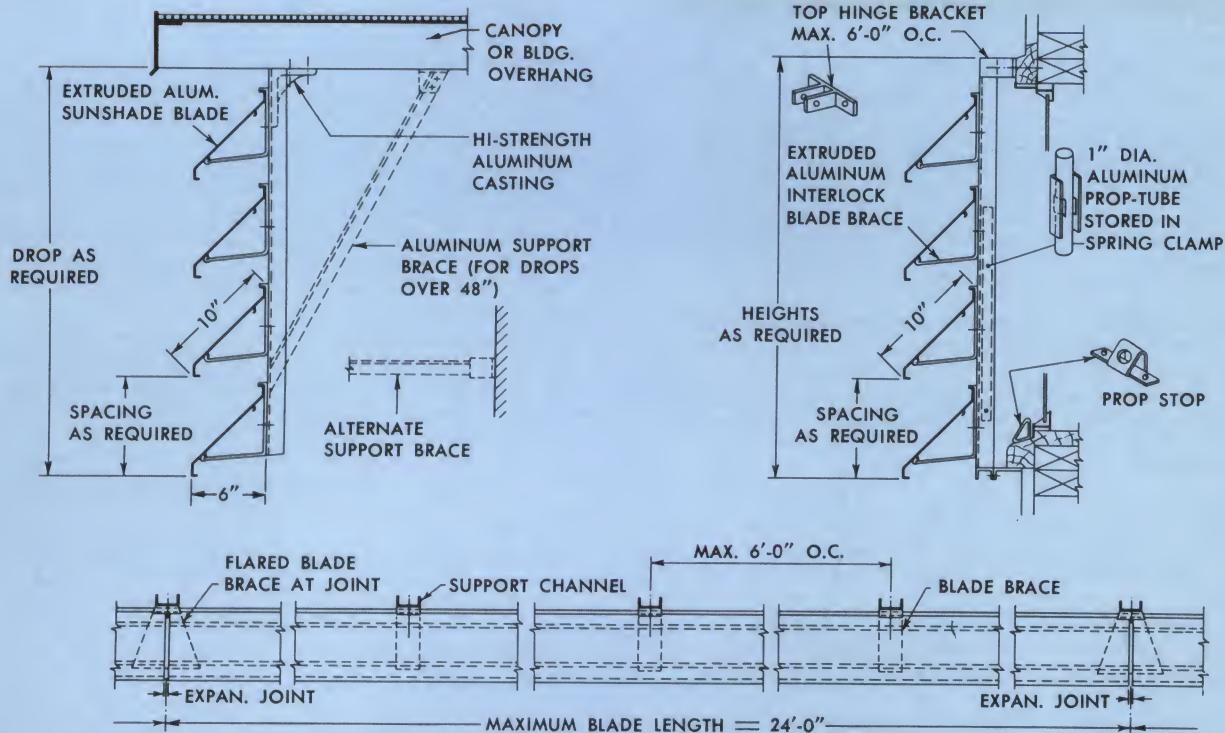
vertical



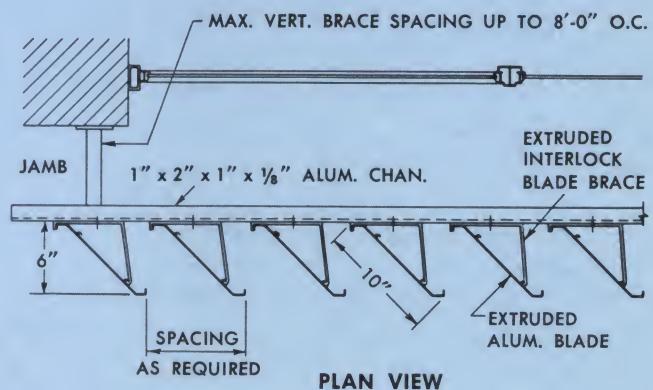
Charlton Company of California, Anaheim, California
Architect: Victor Louis Wulff

The 10 inch extruded aluminum blade mounted vertically, economically protects this office area as well as adding an attractive architectural feature.

horizontal sun curtains
vertical sun curtains



THIS SUNSHADE BEST SUITED TO EAST OR WEST ELEVATIONS. BLADES SHOULD BE SPACED OR POSITIONED TO MEET SHADING REQUIREMENTS



cantilever airfoils

features

The C-S Airfoil Cantilever Sun Shades were specifically developed to span greater distances between anchorage supports. A span of 20 feet can be made without intermediate supports and with no visible deflection in airfoils under standard live loads. A range of airfoil sizes and fascia is available so that the architect may adjust the module of a sun shade to his building.

The Airfoil Cantilever installation is in the same price range as our standard cantilever sunshade which has proved so popular and economical.

aluminum outriggers Our aluminum outriggers are heavy duty structural tubes capable of cantilevering up to 7 feet as shown in the table below. Four standard anchorage devices are available to secure our aluminum outriggers to a variety of wall conditions. Details of these rugged castings are shown on opposite page. Fascia is secured to the outrigger by concealed fastenings with line-up adjustment.

aluminum enclosed steel outrigger Where greater projections are involved, or a large module is desired, the use of a structural steel outrigger may be engineered to handle the required projection. The outrigger is enclosed in an .081 gauge aluminum skin. All aluminum is insulated from steel by neoprene gaskets. The style AD Extruded Aluminum Fascia is adjustable to cap any aluminum enclosed steel outrigger up to 12½ inches in depth.

blade anchorage All C-S Airfoils are fully enclosed at the ends with structural castings of aluminum. The blades are rigidly supported from the outriggers by concealed spring loaded pins of stainless steel. This exclusive spring loaded anchorage device effectively allows for expansion and contraction as well as preventing rattling or expansion noises in the completed assembly.

engineering For details of existing installations or for specific engineering on blades, outriggers or anchorages, contact our home office.

sizes and spans available

airfoil size inches	wall thickness inches	maximum recommended spans (blades set at 45° angle)		
		10 psf *	20 psf *	30 psf *
6" x 1 1/8"		10'-6"	9'-6"	8'-6"
7 1/2" x 1 1/2"	.047	15'-0"	12'-6"	10'-0"
9" x 1 3/4"		17'-0"	14'-6"	12'-0"
12" x 2"	.051	20'-0"	17'-0"	14'-0"

* Vertical Live Load

standard aluminum outlooker and anchorage

C. to C. spacing of outlookers, Feet	live load (psf)	recommended maximum projection, Feet
8'-0"	20	7'-6"
10'-0"	30	5'-0"
12'-0"	30	4'-6"
15'-0"	20	5'-0"
20'-0"	20	4'-6"

suggested specifications

Furnish and install as indicated on drawings, C-S Airfoil Cantilever Sunshades as manufactured by Construction Specialties, Inc., Cranford, New Jersey (for West Coast, use Escondido, California). Sunshades to be fabricated in entirety from extruded aluminum sections, aluminum outriggers 6061 T6 alloy, blades and fascia to be 6063-T5 alloy. All outriggers to be a minimum of .125 gauge and to be secured to the building structure by C-S anchorages. All anchorages to be high strength aluminum alloy, heat treated to develop a minimum strength of 36,000 psi. All anchor bolts to be stainless steel.

All blades to be airfoil shape, one piece seamless 6063-T5 alloy, extruded aluminum. (See table for size and wall thickness.) All blades to be secured to outriggers with aluminum or stainless steel spring pin fastenings with provision for expansion and contraction. The ends of all airfoil blades shall be fully closed with a heavy gauge aluminum casting. All fascias to be structural members C-S style (HS, LS, BN or AD see details). There shall be no bolts or holes through the fascia. All fascia expansion joints to have concealed expansion joint covers and provision for exact fascia line-up. Fascia members to be selected for trueness and unmarred finish. All fascia to be polished to a satin finish and given a one-half hour alumilite and two coats of CS 64 butyrate lacquer. All other extruded aluminum sections to be given a six minute etch finish (or other finish desired see page 19), and to be given one coat of CS 64 butyrate lacquer.

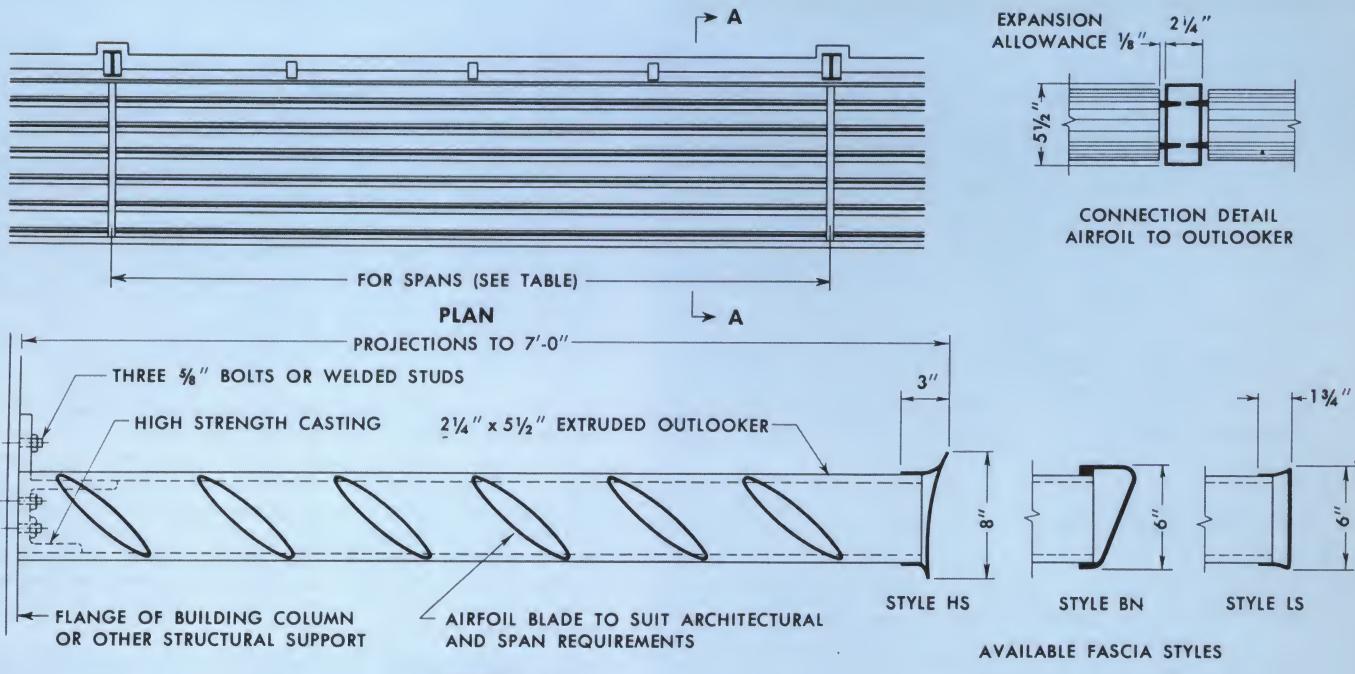
Complete shop drawings, detailed engineering covering anchorage, outriggers and blades and samples shall be submitted to the architect for review and approval.



International Salt Company
Clark-Summit, Pennsylvania
Architect, Von Storch and Burkavage

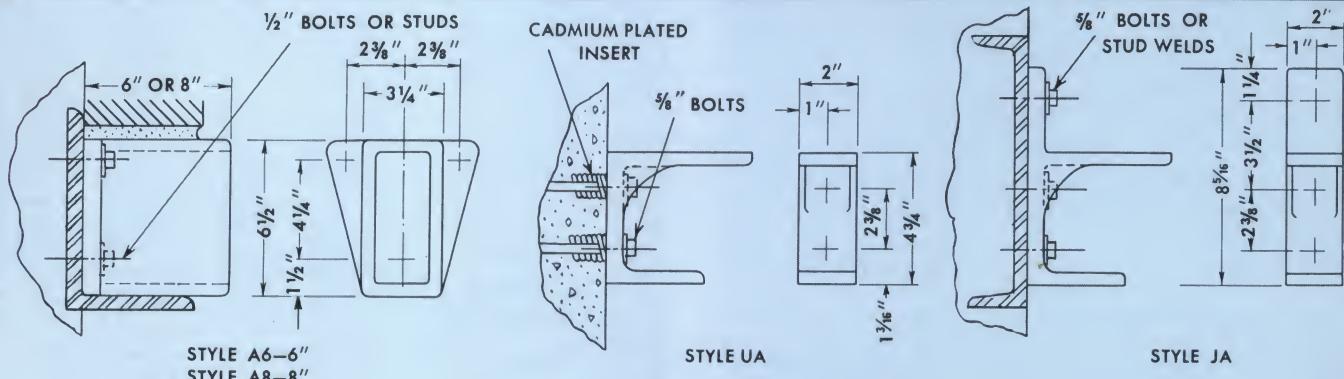
6800 linear feet of 7 1/2 inch C-S seamless airfoil spanning 14 feet between outriggers provide effective sunshading on this new research facility.

cantilever airfoils



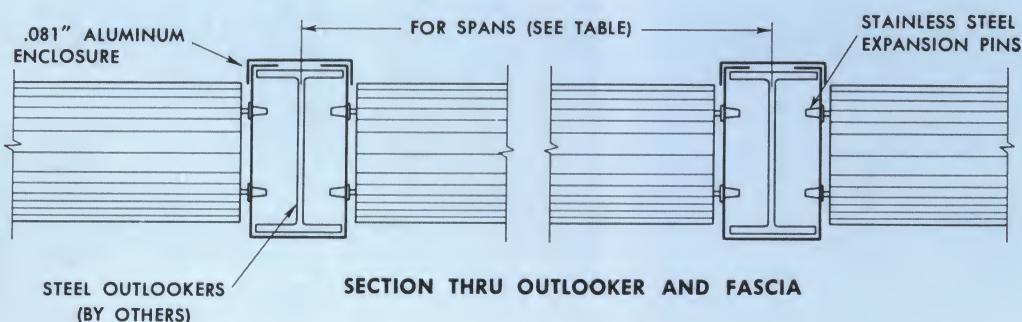
ALUMINUM OUTLOOKERS

SCALE: 1" = 1'-0"



ANCHORAGE DETAILS

SCALE: $1\frac{1}{2}'' = 1'-0''$



SECTION THRU OUTLOOKER AND FASCIA

THIS STYLE AVAILABLE
TO FIT OUTLOOKERS FROM
8" TO 12½" IN DEPTH

ALUMINUM ENCLOSED STEEL OUTLOOKERS

SCALE: 1" = 1'-0"

fixed horizontal airfoils

features

The structural strength and clean line of the C-S Horizontal Airfoil provides an almost unlimited architectural design application. The C-S Seamless Airfoils were specifically developed to span greater distances between anchorage supports. A span of 18 feet can be made without intermediate supports and with no visible deflection in airfoils under standard live loads. A range of airfoil sizes is available so that the architect may adjust the module of the sunshade to his building. Properly designed Horizontal Fixed Airfoils provide excellent protection from the sun while permitting diffused light to enter and maintaining a maximum vision range.

economy C-S Airfoils are mass-produced to provide basic economies where this sunshade is used. The strong seamless sections are light in weight and the long span eliminates the necessity for intermediate supports and fastenings to the building structure. The light independent units and field tested anchorage provide easy, economical erection. Freight costs are reduced because the complete assembly is light in weight and need not be shipped in bulky sections. Plants on both East and West coasts further reduce freight costs.

finishes The Airfoil shape lends itself to an economical application of the various anodize or color finishes available for aluminum. Porcelain enamel may be applied on our airfoils to match other elements in a building. Economical, permanent colors are available by specifying epoxy base coatings. A minimum finish specification of a six minute caustic etch with two coats of CS 64 butyrate lacquer is recommended.

recess mounting C-S Airfoils may be recess mounted between column covers or mullions to provide a most economical and effective sun shade installation. A 9" airfoil spaced 8" on centers will provide complete sun protection for any sun elevation.

projected mounting Highly original designs may be developed by projecting horizontal fixed airfoils beyond the building face to run in a continuous unbroken line.

anchorage A wide variety of cast and extruded anchorages are available. Each type has been specifically designed for the fixed horizontal airfoils.

The cast anchorages are heavy duty units heat treated to develop a minimum strength of 36,000 psi. Where airfoils are fitted between mullions the ends are fully enclosed with structural castings and the blades are rigidly supported from the mullions by spring loaded pins of stainless steel. Where joints occur in a run of Horizontal Airfoils neat internal line-ups are used to provide accurate line-up and for expansion and contraction.

sizes available

airfoil size, inches	wall thickness, inches	maximum recommended span blades set in horizontal plane, feet		
		10 psf *	20 psf *	30 psf *
6 x 1 1/8	.047	10	9	8
7 1/2 x 1 1/2		14	12	9
9 x 1 3/4		16	14	12
12 x 2	.051	18	15	13

* Live load

Detailed analysis of the structural properties for each airfoil section, is available to the architect or engineer upon request.

suggested specifications

Furnish and install as indicated on drawings, C-S Fixed Horizontal Airfoil Sunshades as manufactured by Construction Specialties, Inc., Cranford, New Jersey (for West Coast use Escondido, California). All sunshade blades to be airfoil shape, one piece seamless extruded aluminum 6063 T5 alloy, (note size and wall thickness from table). Neat end closures shall be provided for all airfoil blades. All anchorages to be high strength aluminum alloy, heat treated to develop a minimum strength of 36,000 psi. All fastenings to be of stainless steel and to permanently secure the blade in position. Positive provision shall be made for expansion and contraction.

All blades to be free of mars and blemishes and to have a 215 Cl anodize finish, with two coats of CS 64 clear butyrate lacquer. A certification and field test on the anodize finish shall be furnished. (For color finishes, porcelain enamel or epoxy see page 19.) Complete shop drawings, detailed engineering covering anchorages and blades, and samples shall be submitted to the architect. All erection to be performed in a thoroughly workmanlike manner in accordance with manufacturer's approved procedures. Sunshades to be fabricated by a manufacturer with a minimum of two years' experience in this type of work.



Greater Hamot Hospital Erie, Pennsylvania
Architect, Johnson, Gray and Associates

10,000 lineal feet of 7 1/2 inch seamless airfoils in porcelain enamel finish span 11 feet between column covers to provide effective sunshade and color accent to the hospital addition.

horizontal airfoils • vertical airfoils

fixed vertical airfoils

features

The structural qualities of the C-S seamless airfoil, the cleanliness of shape and simplicity of line, offer the architect an unusual design opportunity in the application of sun controls.

anchorage C-S has developed a wide variety of standardized extruded and cast devices to secure our airfoil shapes both for recessed and projected mounting. Anchorages are neat, strong and unobtrusive. They incorporate line-up adjustment to provide ease in field erection. For details on our anchorage devices and their application, contact our home office.

economy C-S Airfoils are mass produced shapes, light in weight, gaining their strength from one piece seamless construction. These factors combined with the ease in erection using C-S anchorages, give a quality installation at a remarkably economical cost.

large size Fixed Airfoils over 12 inches are fabricated with a structural center member securing formed sheet nosings. These large size blades are structurally rugged and yet can impart a monumental effect to a building most economically. Blades can be furnished in epoxy color coatings to 28 foot lengths.

sizes available

airfoil size inches	maximum unsupported height, feet		wall thickness
	20 psf	30 psf	
One piece seamless airfoils			
6 x 1 1/8	11	10	
7 1/2 x 1 1/2	14	12	
9 x 1 3/4	16	13	.051
12 x 2	20	15	
Large size airfoils			
18 x 2 1/2	22	17	.064
22 x 3	24	19	
28 x 3 1/2	26	22	.081
36 x 4	28	24	

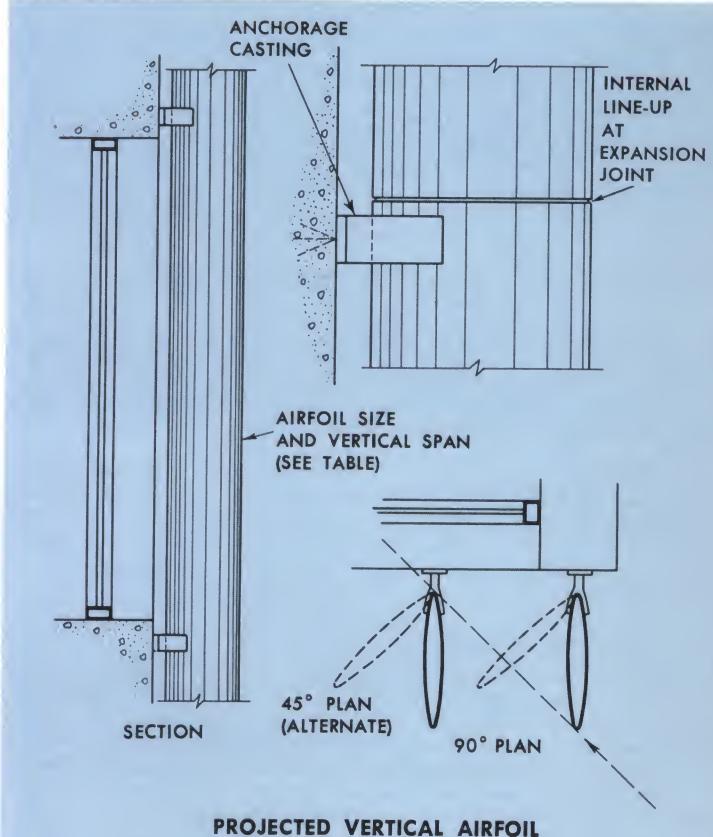
suggested specifications

Furnish and install as indicated on the drawing, C-S Fixed Vertical Seamless Airfoil Sunshades as manufactured by Construction Specialties, Inc., Cranford, New Jersey (for West Coast, use Escondido, California).

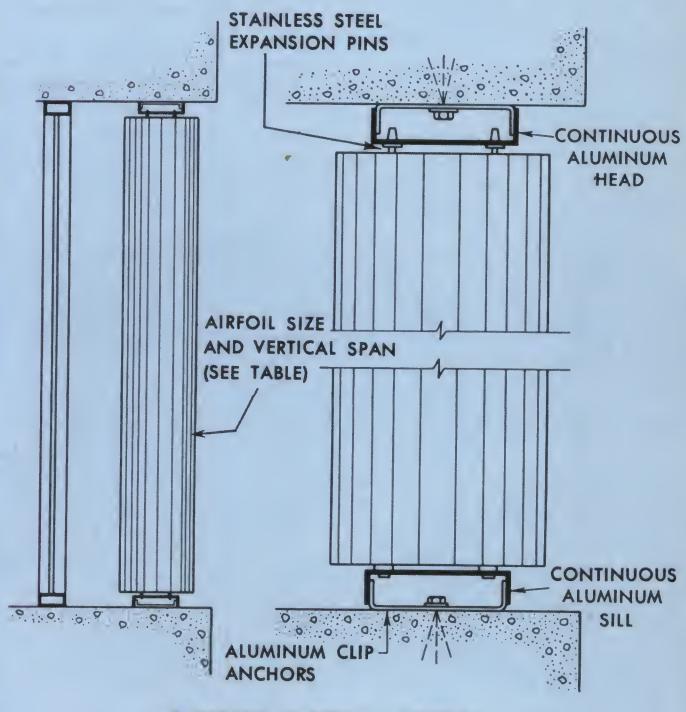
All blades shall be one piece seamless extruded aluminum airfoil shapes, 12" x 2", minimum .051 gauge (see table for other sizes and gauges), 6063 T5 alloy, extruded aluminum. All blades to be free of mars and blemishes and to receive a 215 Cl anodize .0008" thickness with two coats of clear CS 64 butyrate lacquer. Certification and field tests shall be required on anodize finish. (For alternate specifications of epoxy color coatings or porcelain enamel on aluminum, see page 19).

Horizontal joints shall be not less than 20 feet on centers. All joints shall have full perimeter internal line-ups. Ends of all blades shall have aluminum closures. Anchorages shall be positive and designed with adequate provision for expansion and contraction. Panels and anchorages shall be certified to meet maximum wind loadings. Complete shop drawings and detailed engineering covering blades and anchorages for wind pressures up to 30 psf, shall be submitted to Architect for review and approval.

All erection to be performed in a thoroughly workmanlike manner in accordance with the manufacturer's approved procedures. All blades to line up straight and true. Sun Shades to be fabricated by a manufacturer with a minimum of two years' experience in this work.



PROJECTED VERTICAL AIRFOIL



RECESSED VERTICAL AIRFOIL

fixed rectangular panels

features

C-S Fixed Vertical Rectangular Panels are well suited for use on east or west elevations, with the panels set to reflect the morning or afternoon sun. On south elevations a highly effective fixed sun shade may be designed by combining large fixed vertical panels placed perpendicular to the building wall on centers of window mullions with C-S horizontal sun shades connecting the vertical panels at the head of the windows.

sizes C-S Vertical Rectangular Panels are available in 2, 3, 4, and 5 inch thicknesses in widths to 48 inches and in unbroken heights to 25 feet.

The C-S Rectangular Panels are best suited to installations where panel heights are greater than 12 feet and more than 24 inches in width. Where sun controls are desired in smaller sizes, we recommend C-S Fixed vertical airfoils.

rigidity C-S Rectangular Panels are structural cored panels with a heavy gauge integral extruded aluminum caps on all edges. Although light in weight, C-S rectangular panels are unusually strong and rigid. Provision is made for differentiation in expansion between opposite facings. Wind loadings for various heights and panel thicknesses are available on request.

suggested specifications

Furnish and install as indicated on the drawings, C-S Fixed Rectangular Panels as manufactured by Construction Specialties, Inc., Cranford, New Jersey (for West Coast use Escondido, California). Complete shop drawings to be submitted to the architect for review and approval. Rectangular panels shall be constructed of .032 inch thick # 10 pattern sheet aluminum facings, pressure-thermo-bonded on phenolic resin impregnated fibrous honeycomb core. All facings to have a protective $\frac{1}{8}$ " tempered hard board back up. There shall be no joints in the panel facings and no visible fastenings in the completed panel. Frames shall be heavy gauge extruded aluminum members neatly mitred at the corners and continuously interlocked to the facings.

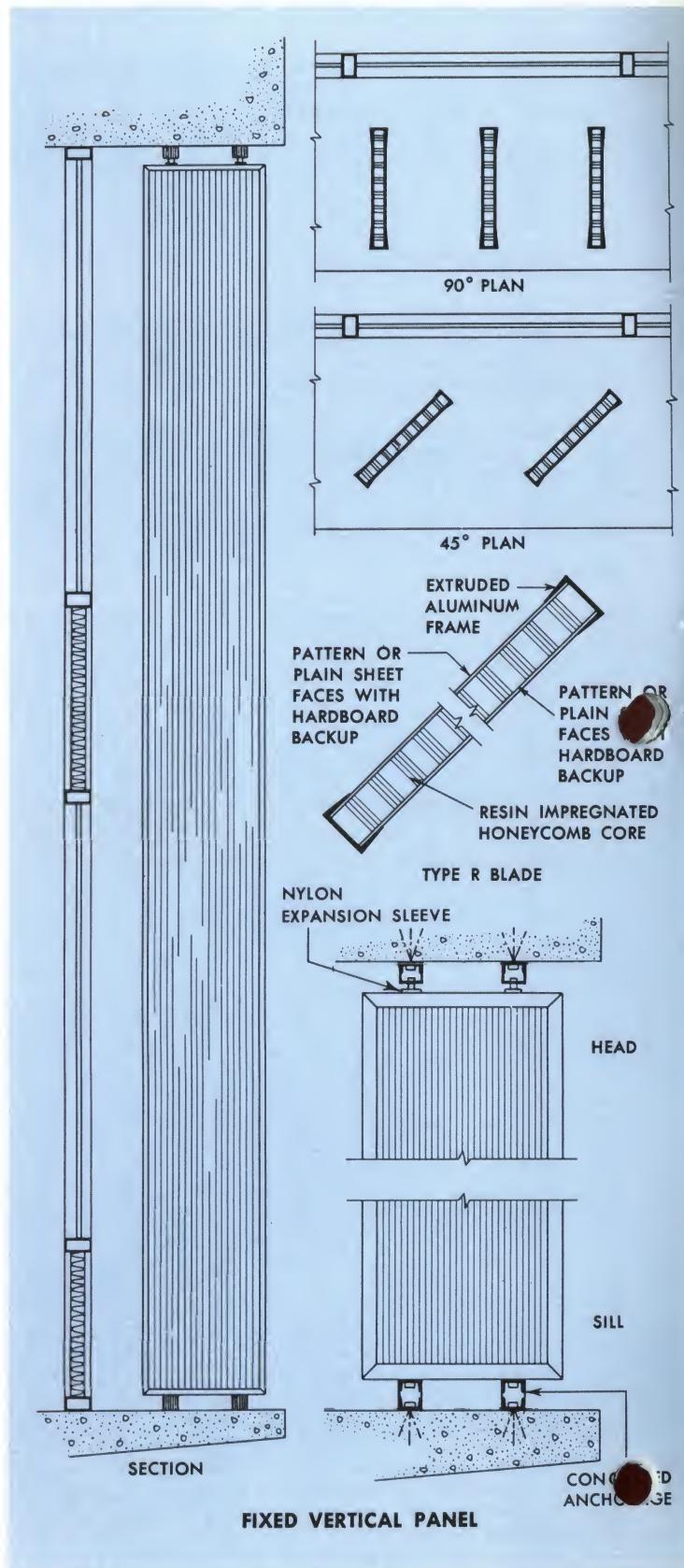
Anchorage shall be neat and positive in design with adequate provision for expansion and contraction. All anchorages and fastening devices shall be of stainless steel or aluminum. Panels and anchorages shall be certified structurally to meet windloadings.

All facings and framing members to have a 204 R1 anodize finish with one coat CS 64 butyrate lacquer. (For alternate clear or color finishes see page 19).



Potsdam Elementary School, Potsdam, N.Y.
Architect, Carl W. Clark, AIA

Fixed rectangular panels protect classrooms on an east wall



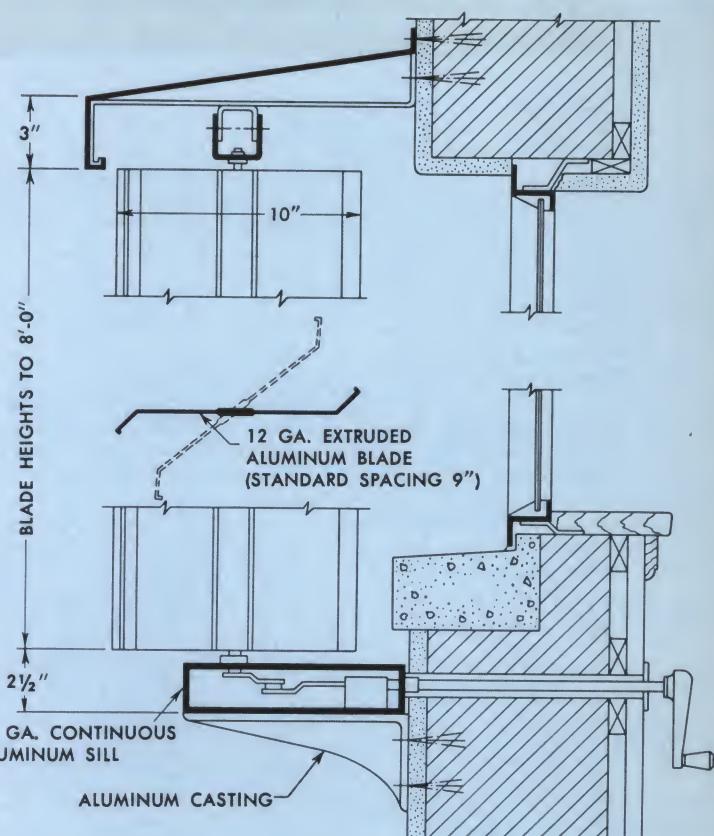
rectangular panels
extruded Z blade • extruded airfoil

operating extruded Z blade

The C-S Extruded Z blade operating sun shade is the ultimate in economy and simplicity of operation. The use of quality, heavy gauge extrusions and the adoption of the time-tested C-S operating louver techniques to solar control assures the architect of a sturdy smooth operating mechanism which is completely enclosed to give a neat appearance as well as to protect it from the elements.

suggested specifications

Furnish and install, as indicated on drawings C-S Extruded Z blade sunshade as manufactured by Construction Specialties Inc., Cranford, New Jersey (for west coast use Escondido, California). All blades to be extruded aluminum, 6063-T5 alloy minimum .081 thickness with reinforcing bosses. Blades shall be one piece construction overall 10 inches wide. Blade spacing to be 9 inches on centers. A continuous .081 gauge aluminum cover shall be supplied to enclose the head of the sunshade. The sill member shall be .081 gauge aluminum supported by high strength aluminum castings 5 feet on centers. All blades to be center pivoted and have zamac alloy pinions operating in self-lubricating nylon bearings. Vertical louvers to be operated through drive arms concealed in the sill member. All drive arms and drive bars to be assembled with stainless steel rivets with nylon bearings at all points of movement. Operating handles shall be located on interior wall as indicated on drawings. All aluminum shall have a 204 R1 anodize finish with two coats of C-S butyrate lacquer. For additional finish specifications see page 19.



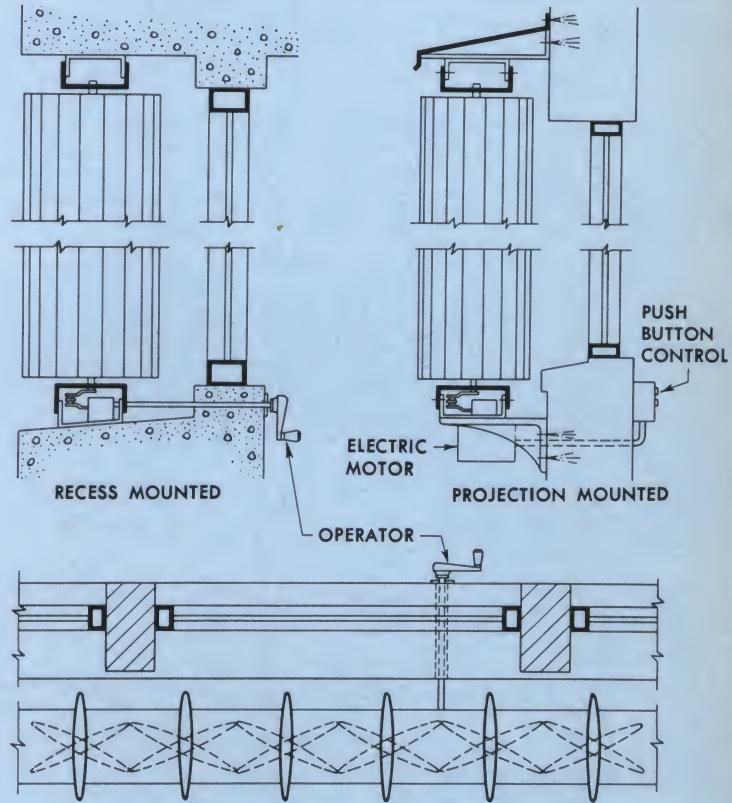
operating extruded airfoil

The extruded operating airfoil offers an unusually neat, clean installation which is attractive from both inside and outside the building. The operating mechanism is completely concealed in continuous aluminum tube supports. There are no visible fastenings or joints on the blade surfaces to mar their smooth seamless airfoil shape.

suggested specifications

Furnish and install, as indicated on drawing, C-S Operating Vertical Sunshades as manufactured by Construction Specialties, Inc., Cranford, New Jersey (for West Coast, use Escondido, California). All operating blades shall be one-piece seamless airfoil shapes, 12" x 2" minimum .051 gauge (see table for other sizes and gauges), 6063 T6 alloy extruded aluminum. There shall be no exposed fasteners or joints on the surface of the blades. All operating bars, compensating bars and linkage shall be completely enclosed in continuous extruded aluminum tube supports at sill and head. All anchorages and fastening devices shall be of stainless steel or aluminum.

All aluminum to receive a 215 Cl anodize, .0008 inch thickness, with two coats of clear CS 64 butyrate lacquer. Operators shall be electrically driven geared units enclosed in weatherproof housings. Input voltage shall be 110/220, 60 cycles, single phase. Control shall be by manual push-button station supplied by the sunshade manufacturer. Control station shall be located as indicated on the drawings. All motors and control boxes shall be completely pre-wired and ready for field installation. All conduit and field wiring by others.



monumental operating airfoils

features

Construction Specialties, Inc., fabricates a wide range of large size airfoils to meet the module and structural considerations for most any design requirement. These monumental louvers have a clean airfoil shape with no exposed fastenings and no horizontal joints. Formed nosings are secured to a structural H-beam center member to form an integral rugged louver vane. Blade ends are closed by heavy castings formed to the contour of the blade. Pivots are ball bearing mounted. Blades, pivots, mounting channels, and drive bars are designed to withstand maximum wind and operational loads.

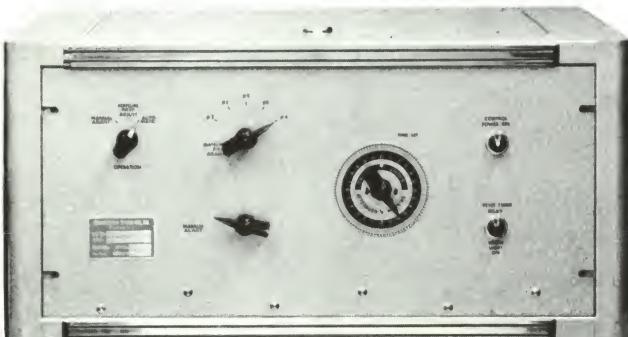
Functionally, C/S Monumental Airfoils provide complete solar protection for all elevations of the building, yet permit diffused light to enter. All C/S Airfoils may be positioned by manual operators, however, application of these hand controls is limited to short runs of sunshade. A minimum recommendation would be electrical power units controlled from a push button control station for Right Left control of the blades. One unit is required for each elevation and should be located with visual reference to the blades.

sizes available

width	thickness	gauge nosing	pivot spacing	max. height
18"	2 1/2	.040	16"	16'
24"	2 1/2	.040	22"	20'
27"	3	.050	24"	24'
34"	4	.064	30"	28'
40"	4	.080	36"	32'
56"	4	.080	48"	36'

controls

C/S Automatic Controls should be specified wherever installations of Monumental Operating Airfoils are used to provide constant sunshading and uniform appearance without supervision. They greatly increase the convenience and efficiency of the installation but add only a small percentage to the overall cost. Each C/S Solar control is pre-set to the longitude, latitude and orientations of a particular building. The C/S control is completely automatic requiring no adjustment for seasonal variations in sun positions. The photo electric control adjusts to periods of shade by opening the vanes to admit the minimum amount of light. When the sun reappears the automatic control immediately picks up the correct shade programming regardless of time lapse. A manual automatic selector switch is included for optional manual control of each elevation.



C/S Master Control console in attractive gray hammertone cabinet is 21 1/2" wide x 10 1/2" high x 15" deep.

suggested specifications

Furnish and install as manufactured by Construction Specialties, Inc., Cranford, New Jersey, C/S Monumental Vertical Operating Sun Louvers to the shape and the dimensions as indicated on the drawings.

Sun louver blades shall be fabricated using one piece, neatly formed, nosings securely joined to a structural extruded aluminum H section. Nosing shall be airfoil shaped from .064 gauge 5005-H-154 alloy aluminum with a number 10 pattern finish on all exposed faces. There shall be no horizontal joints in nosings or extruded members, no exposed fasteners shall mar the face of the blade. Ends shall be neatly closed by structural aluminum castings formed to the contour of the blades. Blades shall be ball bearing mounted at both top and bottom pivot points. Head and sill mounting channel and drive bars shall be minimum .125 gauge extruded aluminum members. Drive bars shall have stainless steel shoulder bolts operating in heavy gauge nylon bearings at all pivot points. All anchorages and fastening devices shall be of stainless steel or aluminum. All blades, mounting channels and drive bars shall be certified to meet maximum operational and wind loads. Complete shop drawings and detailed engineering covering blades, anchorages and operators shall be submitted to the architect for review and approval.

control system Furnish and install C/S Automatic Solar Control System, model number 600, as manufactured by Construction Specialties, Inc., Cranford, New Jersey. System shall be composed of a master control console, blade position registering unit, photoelectric cell light intensity sensing unit, and geared electric motor actuator.

The master control console shall be a metal cabinet finished in gray hammertone baked enamel. The cabinet shall contain daily and seasonal program timer system with reset switch, power supply, amplifier and resistance units, photoelectric cell amplifier with relays for actuation of cloudy day override, and control devices for pre-setting blade positions. Protective devices or circuits shall be provided for the entire electrical system. Components contained within the cabinet shall be mounted on a frame which shall be secured to the face panel and shall be easily and completely removable for inspection or servicing without disconnecting any wiring between components within the cabinet.

The blade position registering unit shall be mounted at the top of one of the blades in a weatherproof housing and properly synchronized with the blade movement.

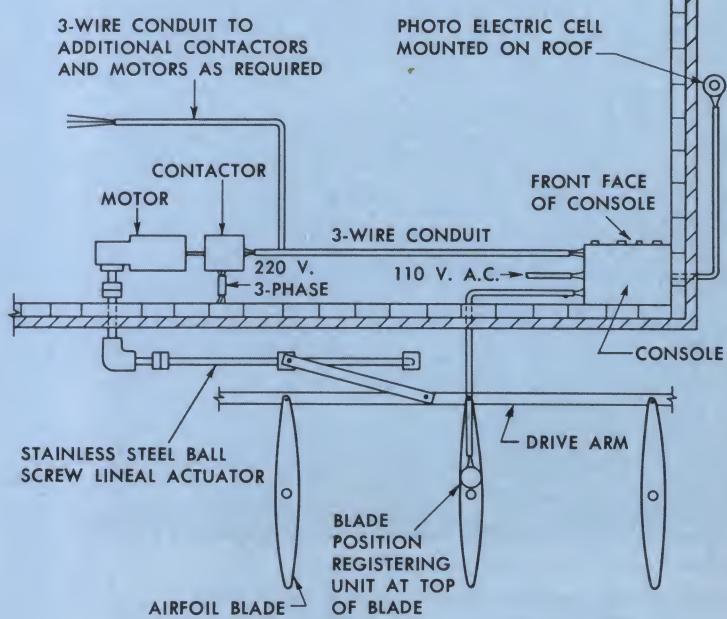
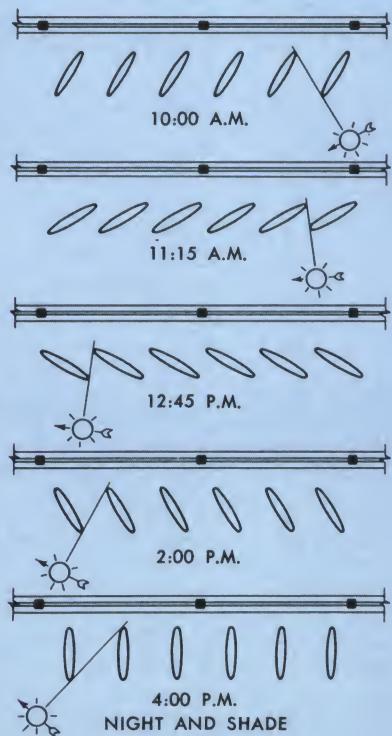
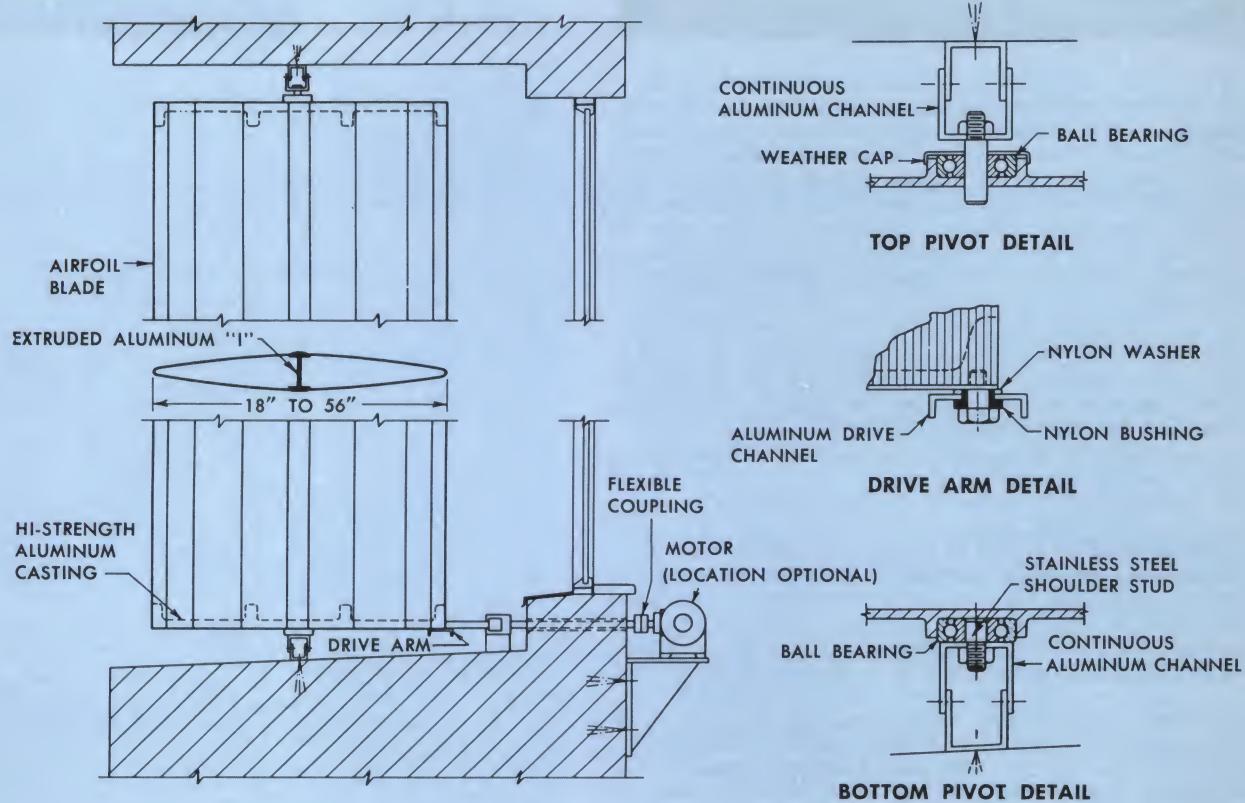
The photoelectric light intensity sensing unit shall be mounted on the roof facing the same direction as the blades it controls. The sensitivity of this unit shall be adjustable at the master control console. Unit shall be contained in a weatherproof housing. The blade actuating mechanism shall consist of a geared motor and contactor unit. The shaft of the motor shall be connected through a flexible coupling with a 90 degree bevel gear drive. The bevel gear drive shall in turn be connected, through a flexible coupling, with a stainless steel ball screw lineal actuator.

The system shall be calibrated for orientation, latitude, and longitude, so as to automatically provide for the maximum amount of light being admitted but excluding direct sunlight at all times of the day during all seasons of the year. The cloudy day override feature shall automatically open the shades to admit maximum light when the overall light intensity of the sky is decreased by cloud conditions. There shall be a predetermined time delay to prevent frequent movement of the blades when intermittent clouding obscures the sun.

The entire system shall be prewired, calibrated and tested before shipment. Conduit and wiring between the various units of the system shall be by others.

All prospective bidders on this section shall prequalify with the architect not later than five (5) days prior to the contract bid, and shall have available for the architects' inspection, three installations equal in function and quality to the Construction Specialties, Inc. Automatic Solar Control System.

monumental operating airfoils



DIAGRAMMATIC POSITION SEQUENCE
USING C-S SOLAR AUTOMATIC CONTROLS

ornamental demi-fins

C-S Ornamental Demi-Fins have been developed as a solution to the architect's recurring problem of economically adding line and form to today's functional construction. They may be used either vertically or horizontally to add dramatic line, or to delineate a module. The exposed surfaces of these fins have a #10 fluted pattern to accentuate the graceful line of the shape. The demi-fins economically add trim and visually enclose open-air structures such as parking garages, balcony areas, pavilions or walk-ways. They also have application in modernization of older buildings.

The extruded hollow section used in the C-S Demi-Fins has excellent structural characteristics. The sections are engineered to span large openings. Construction features of the demi-fin include a concealed anchorage system and the availability of long spans. Neat end closures may be supplied if desired.

A wide variety of finishes are available for C-S Demi-Fins as shown.

suggested specifications

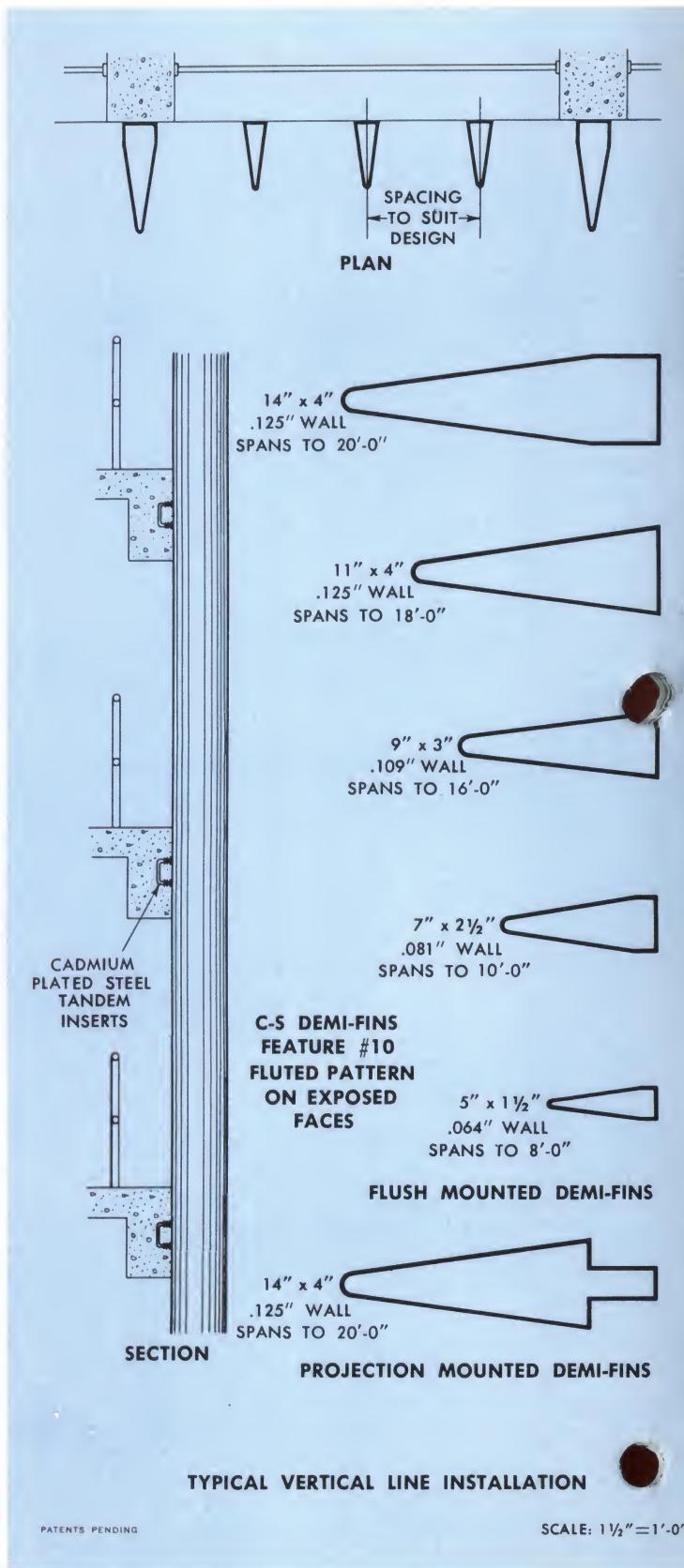
Furnish and install C-S Ornamental Demi-Fins (indicate size and style from detail this page), as manufactured by Construction Specialties, Inc., Cranford, New Jersey (for West Coast, use Escondido, California). All sections to be extruded aluminum, 6063-T5 alloy, minimum gauge wall thickness .125. All exposed surfaces to have #10 fluted pattern surface with 204 R1 anodize finish .0004 thickness, protected by two coats of CS 64 butyrate lacquer. Certification of anodic treatment shall be supplied to the architect. All anchorages shall be a concealed type of stainless steel or aluminum. Joints shall be not less than 22 feet on centers. Internal line-up shall be required at all joints with adequate provision for expansion and contraction. Ends of all demi-fins shall have neat aluminum closures. Insulation shall be provided between dissimilar metals or concrete. Complete shop drawings to be submitted to architect for approval prior to fabrication.



Emery Parking Garage—Cincinnati, Ohio

Architect: National Garages;
Consulting Architect: Fred Brauning and Asso.

C-S 14 inch Demi-Fins 40 feet high add dimension and character to this parking garage.



finishes**mill finish**

The natural finish of aluminum as received from the extrusion press has an attractive, pleasing grain. Subsequent weathering grays the metal uniformly. The as-fabricated extrusion provides a

low-cost finish because it requires no special treatment. However, unprotected mill finish will show fingerprints and is susceptible to damage by mortar.

caustic etch and butyrate lacquer

Caustic etch and butyrate lacquer provides a satin finish which combines economy and a long life clear protective coating. The etch is produced by a low cost chemical treatment, well suited to C-S extruded aluminum products. Various degrees of etch are available. The etch not only provides a clear even texture to the aluminum, but is a prerequisite to a proper lacquer bond. CS-64 Butyrate Lacquer is the finest exterior protective lacquer now available. Research laboratory tests reveal it to be con-

siderably superior to a methacrylate lacquer. It has shown itself to withstand the most rugged on-the-job testing, with no visible deterioration for periods of over four years. Detailed specifications, weatherometer test data and test comparisons with methacrylate lacquer are available for review.

As a minimum specification, we recommend: "All aluminum to be free of scratches and blemishes, and to be given a six minute caustic etch with one coat of CS-64 butyrate lacquer."

anodize finishes

Construction Specialties, an Alcoa alumilite licensee, has complete in-plant facilities for clear and color anodizing of individual structural pieces up to 25 feet in length. This electrolytic treatment provides a smooth hard oxide coating that protects surface appearance retaining the natural color and surface texture of aluminum. Anodized surfaces also offer increased resistance to wear, abrasion and weather and are easy to maintain. We recommend a one-hour anodize to give a ".0008" coating, having a per square inch weight of 35 mg. All of our anodized work receives two coats of CS-64 butyrate lacquer. It is recommended that anodize treatments be applied to textured pre-treatments as previously discussed. It may be specified numerically as follows:

Caustic Etch and half-hour Alumilite	# 204 R1
Caustic Etch and one-hour Alumilite	# 215 R1

C-S maintains a quality control on all anodize work and certifies each job in writing as to surface film, thickness, density range and color.

Since anodize coatings are difficult for the architect to check in the field, a written certification on the finish should be required wherever anodize is specified.

suggested specifications

All aluminum shall have a one-hour anodize 215 R1, with two coats of CS-64 butyrate lacquer. Anodic film thickness to be .0008 inches. A written certification as to film thickness, density range, and color analysis shall be supplied. Field tests of all anodize to be made at architect's request.

epoxy color coatings

Construction Specialties has been using and developing epoxy color coatings for more than four years. In C-S Epoxy Coatings the architect has available a complete range of exterior color coatings with a hardness, toughness, mar resistance, and color fastness that closely approaches porcelain enamel at a small premium over ordinary baked enamel paints. Comparative weatherometer salt spray, and hardness test data is available on request. Acceleration and longevity tests, indicate a durability of our modified epoxies in normal atmospheres to be in the range of 20 years. To achieve these results the epoxies must be properly applied, by experienced personnel.

C-S has installed new facilities specifically for the application of high bake epoxy coatings. These include pre-treatment tanks, large water-wash spray booths, and a precisely controlled automatic oven with facilities for finishing single pieces up to 28 feet in length. To augment this equipment, elaborate controls and testing procedures are used together with proper instrumentation and trained personnel. It is recommended that the architect use the following specification and see that all the provisions are rigidly observed.

suggested specifications

All sun shades shall be finished both sides with an epoxy color coating—color to be selected by the architect. Two 7" x 11" samples on 20 gauge aluminum sheets of the epoxy coating in the approved color shall be furnished to the architect prior to any factory finishing.

The epoxy shall be of the thermal setting type, minimum baking cycle of 450 degrees for fifteen minutes. Finish coating thickness shall be a minimum of .0015 thickness. All aluminum to be thoroughly cleaned and given a six minute caustic etch and ten minute anodize before application of the color coating. All finishing shall be a continuous operation in the plant of the louver manufacturer. The epoxy coating shall withstand without breakdown, 1,000 hours salt-spray, and 1,000 hours weatherometer tests.

Written certification as to the manufacturer of the coating, the location of the processing, and detailed processing conditions, together with salt-spray, weatherometer, and hardness tests of the coating shall be supplied to the architect at delivery. Field tests of coating thickness and complete curing shall be provided at the architect's request. The fabricator shall supply, at job completion, a written two year guarantee against failure of the color finish.

porcelain enamel colors

An almost unlimited selection of colors are available in matte or gloss finishes in vitrified porcelain enamel on aluminum. They are economically practical, as well as highly decorative. Porcelain enamel colors on aluminum resist fading and withstand abuse without chipping or spalling. Wherever porcelain enamel is speci-

fied on C-S products, a detailed specification covering basic alloys, pre-treatment, enamelling, gloss, color and spall testing should be incorporated into the specifications. Full length specifications covering porcelain enamel on aluminum and porcelain samples are available on the architect's inquiry.



**sales and engineering
representatives**

For detailed information and samples of our products, telephone our nearest representative or contact the home office.

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IVanhoe 3-9121
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MOhawk 3-9111
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LUther 2-8204

KENTUCKY

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EAst 4-7030
Louisville
WEst 7-8081

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Shreveport
MElrose 5-7545

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MAYfair 3-8221

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REpublic 7-8531

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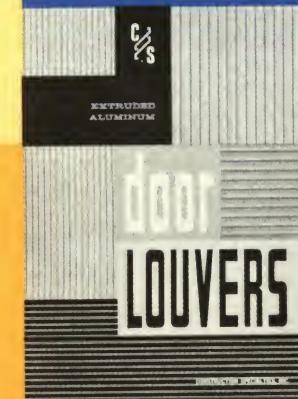
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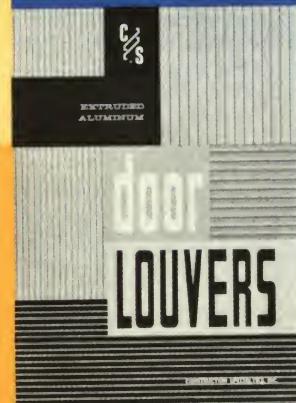
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